

ANTI-THEFT TAG

Description

1. Technical Field

The invention relates generally to an anti-theft tags and, more specifically to an improved anti-theft tag including an electronic article sensor for attaching to a product, such as a watch.

2. Background of Related Art

It is well known in the art to use electronic article surveillance (EAS) sensors in order to prevent the theft of consumer products. Such electronic sensors trigger an alarm if not detached or disarmed before the product is removed from the store. For many products, electronic sensors have been very effective in deterring theft. However, such sensors can be difficult to attach to certain products, for example jewelry, and can often be easily removed from such items even when attached. One higher price item where the difficulty of attaching electronic sensors is prevalent is watches. Often sensors cannot be attached to watch bands because they can be easily slipped off one end, and if the sensors are overly large they can limit the customer's ability to try on the watch before purchasing. Thus, electronic sensors attached to products such as watches must not only be tamper resistant in the hands of the consumer, but should also not interfere with the consumer's ability to try on the product. In addition, it is desirable to have sensors which can be readily attached to a variety of products, which can be attached in a convenient manner, and which are tamper resistant so that the EAS sensor cannot be readily removed by the consumer. A variety of tags containing EAS sensors have been developed over the past years in an attempt to address these and other concerns.

One such sensor is described in U.S. Patent No. 6,188,320 to Kolton et al. The '320 patent discloses an article identification and surveillance tag having an article engaging loop (22) which is adjustable by pulling on end member (20b) which is accessible exteriorly of the tag body. The tag (10) includes a body formed of housings (12 and 14) which are joined together during use. A tail (20) includes a first tail end (20a) which is peripherally continuous with a first

1 end of the housing (12) which defines loop (22) exteriorly of the housing. The tail (20) extends
2 from the loop, into and through the housing and terminates in tail end piece (20b), which is
3 accessible exteriorly of the tag (10). Housing (12) defines an interior channel (24), the walls of
4 which are formed with facing ratchets (26 and 28). Secured to tail (20) interiorly of housing (12)
5 is a collar (30) of pawl member (32). The outer walls of pawl member (32) are formed with teeth
6 (34 and 36) which engage respectively with ratchets (26 and 28). The ratchets 26 and 28) and
7 teeth (34 and 36), engage such that the pawl member (32) is moveable only in one direction, i.e.,
8 downwardly, so that the loop can only be made smaller. The ratchets and teeth thus form a one
9 way clutch, which precludes upward movement of pawl member (32). In one embodiment, the
10 tail (52) defines a loop (53) exteriorly of the housing, the tail extending from the loop and tail
11 parts (52a, 52b), ends of which are joined inside member (52c), and which is accessible
12 exteriorly of tag (42).

13 U.S. Patent No. 6,128,932 to Mainetti et al. discloses an anti-shoplifting device including
14 a housing having a lower half (2) and an upper half (3), and a ferromagnetic plate (4) which is
15 inserted into an internal cavity (5) formed by the upper and lower halves after they have been
16 joined. A flexible and/or elastic cord (8) is supported on an edge of the lower half (2) and
17 includes a spike (9) having flexible tongues (10), the spike (9) being insertable in an irreversible
18 manner into opening (7) of the lower half (2) in order to form a loop which is attachable to a
19 product.

20 U.S. Patent No. 5,437,172 to Lamy et. al. discloses an anti-theft device for eyeglasses
21 including a plate (1) having a link (7) extending therefrom. The plate includes a slot (14) for
22 inserting the free end portion (15) of the link (7) and has fastening means for retaining the end
23 portion (15). The fastening means includes a block (16) supported on the plate (1). The link (7)
24 is connected to the plate (1) by inserting the link into a slot (18) until a bulged portion (17) is in
25 abutment. After the link (7) has been looped around the bridge of the frame of a pair of
26 eyeglasses, it is then inserted into the slot (14) to be locked therein. The link is fastened by a pin
27 (22) which is moveable perpendicularly to the link and which projects into one of the holes (10)
28 of the link under the action of a spring (23).

1 While generally effective, the aforementioned devices and others available in the art can
2 still be difficult to attach to a variety of products, and can often be tampered with by the
3 consumer. Accordingly, there is continued development in the art in order to further improve
4 anti-theft tags.

6 **Summary**

7 One object of the present invention is to provide an anti-theft security tag including an
8 electronic article surveillance marker which is capable of being readily assembled, while being
9 tamper resistant after assembly.

10 In accordance with one aspect, there is provided an anti-theft security tag having an
11 engagement member, for example a cable or wire, which includes a first and a second end
12 securable within a housing for attachment to an article, for example a watch band. The housing
13 preferably further includes a channel for receiving and securing a crimping sleeve, and supports
14 an electronic article surveillance marker. A slot is preferably disposed within the housing for
15 receiving a crimping tool in order to attach and secure the wire to the article, and within the
16 housing, so that the ends of the wire are not readily accessible by a consumer. The combination
17 of these features allows the anti-theft tag to be readily assembled and tamper resistant after
18 assembly, as described in greater detail below.

20 **Brief Description of the Drawings**

21 It should be understood that the drawings are provided for the purpose of illustration only
22 and are not intended to define the limits of the invention. The foregoing and other objects and
23 advantages of the embodiments described herein will become apparent with reference to the
24 following detailed description when taken in conjunction with the accompanying drawings in
25 which:

26 Fig. 1 is a front perspective view of an anti-theft tag in accordance with a first
27 embodiment;

28 Fig. 2 is a rear perspective view of the anti-theft tag of Fig. 1;

29 Fig. 3 is an exploded view of the anti-theft tag of Fig. 1;

Fig. 4 is a top plan view of the anti-theft tag of Fig. 1 with the backing removed;
Fig. 5 is a perspective view of a top portion of the anti-theft tag of Fig. 4 during attachment;
Fig. 6 is a cross sectional view taken along lines 6-6 of Fig. 5 prior to insertion of a second end of the wire into the housing;
Fig. 7 is a cross sectional view taken along lines 6-6 of Fig. 5 after insertion of a second end of the wire into the housing;
Fig. 8 is a perspective view of the anti-theft tag of Fig. 1 upon insertion of a crimping tool;
Fig. 9 is a cross sectional view taken along lines 9-9 of Fig. 8 illustrating crimping of the second end of the wire;
Fig. 10 is a front perspective view of an anti-theft tag in accordance with a second embodiment;
Fig. 11 is an exploded view of the anti-theft tag of Fig. 10;
Fig. 12 is a top plan view of the anti-theft tag of Fig. 10 with the backing removed;
Fig. 13 is a top plan view of the anti-theft tag of Fig. 12 during insertion of a second end of the wire;
Fig. 14 is a cross sectional view taken along lines 14-14 of Fig. 13 during adjustment of the second end of the wire into the housing; and
Fig. 15 is a cross sectional view upon insertion of a crimping tool illustrating crimping of the second end of the wire.

Detailed Description of the Illustrative Embodiment

An anti-theft security tag **10** including an electronic article surveillance marker **12** for attachment to an article, such as a watch band **13**, is illustrated in Figs. 1-15. As used herein, the term “article” refers to any type or style of consumer product. Also, as used herein, “watch” refers to any style or type of watch which may be worn by a user. However, it is expressly understood that the present invention is not limited to use with watches and may be used with any of a variety of articles as would be known to those of skill in the art.

Referring now to the Figs. 1-9, a first embodiment of the anti-theft security tag **10** is illustrated. The tag **10** includes an engagement member **14** for securing the tag to an article, such as a watch, and a housing **16** for supporting an electronic article surveillance (EAS) marker **12**. In the present embodiment, the housing **16** preferably includes a base **18a** and a backing member **18b**. The base preferably includes a front wall **19a**, side walls **19b** and **19c**, a bottom wall **19d** and a top wall **19e**, the walls bounding a cavity **20** formed in the base. In the present embodiment, the top wall **19e** includes a pair of holes sized to receive a first end and a second end **22a**, **22b**, respectively, of the engagement member **14**, the holes providing access to a pair of channels **21a**, **21b** disposed within the base. The engagement member **14** may take any of a variety of forms, suitable for engagement with an article, and preferably includes a wire **24** and a pair of crimping sleeves **26a**, **26b** for retaining the first and second ends of the wire within the housing during use, as described in greater detail below. The wire is preferably sufficiently strong so as to withstand tampering. In the present embodiment, the wire is able to withstand about 40 to about 50 lbs of pressure before beginning to fail.

The crimping sleeves **26a**, **26b** are preferably cylindrical and are sized to loosely fit around the first and second ends **22a**, **22b** of the engagement member prior to crimping, and are also sized to fit within the channels **21a**, **21b**. The crimping sleeves are pliant so that a crimping tool **28** engaging the sleeves will force the sleeves inward so as to crimp around the ends of the engagement member, as is known in the art. The first end **22a** of the engagement member **14** is preferably received through an opening **30a** in the top wall **18e** of the base **18a** and into the crimping sleeve **26a** disposed in channel **21a**. The crimping sleeve **26a** is preferably crimped by the manufacturer, and is sized larger than the opening **30a** so that the first end is secured within the base **18a** when received by a retail establishment. Although a channel is provided for the crimping sleeve **26a**, it is an optional feature and may be eliminated as would be known to one of skill in the art. The second end **22b** of the wire **24** is preferably not crimped at this point so that the tag can be attached to the article at a later date. However, crimping sleeve **26b** is preferably held in place within channel **21b**, in alignment with opening **30b** and slot **33**, which is sized to receive a crimping tool, as described in greater detail below.

1 A conventional EAS marker **12** is preferably placed over the crimping sleeves **26a, 26b**
2 and is supported within the cavity **20** of the base **18a**. In the present embodiment, interior walls
3 **32** aid in supporting the EAS marker and also define the channels **21a, 21b**. The cavity **20** and
4 walls **32** are preferably dimensioned so that the EAS marker is approximately flush with the
5 perimeter of the walls **19b-19e**. Once the EAS marker is in position, the backing member **18b** is
6 secured to the base **18a**. In this manner, the EAS marker is hidden within the housing and is not
7 readily accessible to the consumer. The backing member may have any of a variety of forms, and
8 is an adhesive-backed plastic sticker in the present embodiment.

9 Referring now to Figs. 5-9, connection of the tag to an article, such as a watch band **13** is
10 illustrated. Although the backing member **18b** is missing for purposes of illustration, in use the
11 backing member would be in place. To attach the anti-theft security tag, the second end **22b** is
12 inserted about the article, here through a hole **34** in the watch band, and into opening **30b** so as to
13 form a loop **31** (Figs. 5-6). The second end **22b** is then inserted into crimping sleeve **26b**
14 disposed within channel **21b** (Fig. 7). The crimping sleeve is in alignment with opening **30b** so
15 that the second end is easily received within the sleeve. In the present embodiment, a portion
16 **32a** of interior wall **32** prevents the second end **22b** from being over-inserted and also aids in
17 retaining the crimping sleeve. Slot **33** is sized to receive a crimping tool **38**, and is disposed
18 through side wall **19b** in alignment with the side of the crimping sleeve **26b**. After the second
19 end **22b** is inserted within the crimping sleeve **26**, the crimping tool is inserted through the slot
20 **33** and engages the sleeve **26b** in order to force the sleeve inwardly so as to crimp it around the
21 second end of the engagement member. Because the sleeve **26b** is sized larger than the opening
22 **30b**, even in the crimped state, the second end **22b** is secured within the housing. Once the
23 second end is crimped within the housing, the size of loop **31** is fixed, and the anti-theft tag is
24 securely attached to the article. It will be appreciated the anti-theft tag described herein is
25 capable of being readily assembled, while being tamper resistant after assembly, and may be
26 attached to any number of articles.

27 Referring now to Figs. 10-15, an alternate embodiment including an adjustable
28 engagement member is illustrated. In this embodiment, all parts which are the same, or similar
29 to, corresponding parts in the embodiment of Figs. 1-9 are noted with the same two last numbers,

1 but preceded by the numeral "1". As illustrated, the anti-theft tag **110** is identical to tag **10**
2 described above, with the exception of channel **121b** and the addition of a third opening **140**
3 disposed through bottom wall **119d**. In this embodiment, channel **121b** extends the length of the
4 base **118a**, from opening **130b** in top wall **119e** down to opening **140** in bottom wall **119d**. In
5 addition, crimping sleeve **126b** may preferably be positioned adjacent the bottom wall **119d**.
6 Likewise, the slot **133** for receiving the crimping tool is also positioned adjacent the bottom wall
7 **119d**, in alignment with crimping sleeve **126b**. The remaining elements of the anti-theft tag **110**
8 are the same as in the preceding embodiment, including the positioning of the first end **122a** and
9 crimping sleeve **126a** within the base **118a**.

10 By extending the channel the length of the base **118a**, from opening **130b** in top wall
11 **119e** down to opening **140** in bottom wall **119d** the second end **122b** can pass entirely through
12 the base and out of opening **140** in bottom wall **119d** (Fig. 13). In this manner, the size of loop
13 **131** is adjustable by increasing or decreasing the length of the wire which exits the housing
14 through opening **140**. In use, the first end is first crimped, the EAS marker **112** is inserted and
15 the backing member **118b** is attached, as described above with respect the first embodiment. The
16 second end **122b** is then passed through or around the article, through the first opening **130b**, into
17 channel **121b**, through sleeve **126b** and out of opening **140**. The wire continues to be fed
18 through the opening **140** until loop **131** reaches the desired size. The sleeve **126b** is then
19 crimped by applying the crimping tool **138** through slot **133**, as described above to secure the tag
20 and set the size of loop **131**. After crimping, the portion of the wire which extends from opening
21 **140** may be cut, if desired.

22 It will be appreciated the anti-theft tag described in this embodiment is capable of being
23 readily adjusted to fit a variety of articles while being tamper resistant after assembly, and may be
24 attached to any number of articles.

25 It will be understood that various modifications may be made to the embodiments
26 disclosed herein. For example, it should be understood that the channels may or may not be
27 provided, that the backing member may take any of a variety of forms and be attached to the base
28 in any known manner, and the wire may be formed of alternate materials, for example plastic.
29 Also, although shown as rectangular, the housing may be other shapes, for example circular, in

which case there would be more or less walls, depending upon the particular shape, as would be known to those of skill in the art. Therefore, the above description should not be construed as limiting, but merely as exemplifications of a preferred embodiment. Those skilled in the art will envision other modifications within the scope, spirit and intent of the invention.